

United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Moab Field Office
82 East Dogwood
Moab, Utah 84532

<http://www.blm.gov/ut/st/en/fo/moab.html>



M103710088
cc: Mike
Peter

IN REPLY REFER TO:

3809

UTU-72499

(UTY012)

JAN 2 2014

CERTIFIED MAIL # 7012 3460 0002 5528 0458

RETURN RECEIPT REQUESTED

Lantz Indergard
Lisbon Valley Mining Company LLC
755 North Main Street, Suite B
Moab, Utah 84532

RECEIVED

JAN 06 2014

DIV. OF OIL, GAS & MINING

Dear Mr. Indergard:

Thank you for providing the geochemical workplan that the BLM requested in our letter to you dated September 24, 2013. The BLM received the geochemical work plan, drafted by Whetstone and Associates, Inc., on November 18, 2013. Overall, the work plan is well written and addresses the BLM's concerns that were expressed in the September letter and during our meeting of November 7, 2013. Correct execution of the tasks described in the subject work plan will provide the supporting geochemical data for BLM to make an informed and defensible decision regarding the water-quality implications of backfilling materials from Beds 14 and 15 into the Centennial Pit. Listed below are comments that should improve the results and interpretation of the proposed geochemical testing.

1. **Page 1, paragraph one.** Please add the following: "With the proposed changes in the mining plan and associated changes in waste rock handling, additional geochemical characterization has been requested by the Bureau of Land Management..."
2. **Page 1, Section 1.1 Data quality objectives.** Replace "seepage characteristics" with "change(s) to postmining groundwater quality."
3. **Page 3, Sample collection and preparation.** Please include chain-of-custody procedures for water and rock sample collection and processing.
4. **Page 3, Section 3.2 Groundwater collection.** Please provide a description on how pH, ORP, specific conductance, and dissolved oxygen probes will be calibrated for both field and laboratory measurements. Include frequency of calibration and description of calibration solutions for each parameter.
5. **Page 3, Section 3.2 Groundwater collection.** Instead of inserting a DO probe in the sample carboy, an in-line, flow-thru chamber should be used in combination with a multi-parameter

water quality probe to characterize field parameters and to verify that a representative sample is being collected for the column tests using standard field parameter stabilization procedures.

6. **Page 3, 3.2 Groundwater collection.** Just a suggestion: Put elastic tape around the carboy cap to provide a better seal during water transport and storage.

7. **Page 4, 3.2 Groundwater collection.** It is unclear as to how the water in the large carboys will be stored prior and during column testing. Will the water be stored in the dark at 4 deg. C? Please specify.

8. **Page 8, Table 7.** Please include information on how the solid-phase samples will be extracted. The BLM assumes that this will be a total elemental analysis (i.e. multi acid, sodium peroxide sinter, etc...). The extraction method should be specified in the work plan.

9. **Page 8, Section 3.7 XRD and SEM-EDS.** Please provide the specific objective(s) for the SEM-EDS analysis and a description of how these results will be utilized with the column test results.

10. **Page 10, Table 8.** Please clarify why phosphorus is being included without corresponding analyses of nitrogen species? Depending on the type of blasting residuals on the spoil material, nitrate could be a concern in postmining groundwater.

11. **Page 13, Section 4.5.3, item 6b.** Unclear if density of the solid material will be measured or estimated. Suggest that density be measured or a valid reason justifying an estimation of density.

12. **Page 13, Section 4.5.4.1.** Please clarify if DO/ORP and other field parameter values will be measured in the water prior to entering the column. In addition, what is the contingency plan if the column water supply chemistry changes during transport and storage?

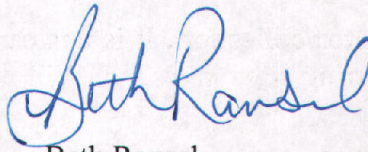
13. **Page 13, Section 4.5.4.1.** Suggest that a sub-sample from the well head be collected, preserved on site, and analyzed for the constituents listed in Table 8. These results should be compared to the unpreserved water samples in the carboys to document similar chemistry after carboy transport and storage.

14. **Page 13, Section 4.5.4.1.** The following changes should be made to the column test procedure: *After initial column wetting, a three-day static contact period will be allowed. After the three-day static contact period, composite samples containing the following pore volumes will be collected and analyzed: 0 to 0.5 PVs; 0.51 to 1.0 PVs; and 1.01 to 2.0 PVs.*

15. **Page 16.** Please add a new section at the end of the work plan that describes how the column data will be integrated with the solid-phase results to provide information on the short and long-term postmining water quality. In addition, this section should include a description of the aqueous- and solid-phase geochemical data to be included in the final report and the format for these results (e.g. data tables, graphs, interpretations) that will be submitted to BLM and their technical consultants for review. Finally a description of how verification monitoring of the anticipated postmining groundwater in the Centennial pit will be instituted (i.e. number of wells, sampling frequency, etc...).

Please incorporate a response to these comments into the work plan at your earliest convenience.
If you have any questions please contact Rebecca Doolittle at (435) 259-2141.

Sincerely,



Beth Ransel
Field Manager

cc: Utah State Office, UT-923
UDGOM, M/037/0088